

12-10-01

3613



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

John M. Egnor

Serial No.: 08/828,560

Filed: March 31, 1997

For: STOP FOR EQUIPMENT POSITIONING

: Group Art Unit: 3613

: Examiner: Graham, M.

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Dear Sir:

Transmitted herewith is an amendment in the above identified application.

No additional fee is required for the amendment.

Enclosed are:

- (1) Amendment
- (2) National Sanitation Foundation Standard for Food Service Equipment
- (3) Self-addressed, stamped postcard for filing receipt

DATE: 11/20/01

RESPECTFULLY SUBMITTED,

TIMOTHY W. CHELL  
ATTORNEY FOR APPLICANT  
28 COOPER STREET  
WOODBURY, NJ 08096  
(609) 848-3636  
REGISTRATION NO. 39,629

RECEIVED

DEC 13 2001

GROUP 3600



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

John M. Egnor

Serial No.: 08/828,560

Filed: March 31, 1997

For: STOP FOR EQUIPMENT POSITIONING

: Group Art Unit: 3613

: Examiner: Graham, M.

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

"Express Mail" mailing label number EF190582168US

Date of Deposit: 11/20/01

I hereby certify that the attached Amendment, National Sanitation Foundation Standard for Food Service Equipment and stamped self-addressed postcard for filing receipt are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

TIMOTHY W. CHELL, ESQUIRE

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "TIMOTHY W. CHELL".



**NATIONAL SANITATION FOUNDATION**

**STANDARD 2**

**FOR**

**FOOD SERVICE EQUIPMENT**

**As Prepared by**

**The NSF Joint Committee**

**on**

**Food Equipment**

**and**

**Recommended for Adoption**

**by**

**The NSF Council of Public Health Consultants**

**Adopted**

**by**

**The NSF Board of Trustees**

**October 1952**

**Revised April 1965**

**Revised August 1968**

**Revised July 1973**

**Revised November 1977**

**Revised December 1980**

**Revised June 1982**

**Revised November 1987**

**Copyright<sup>©</sup> 1988**  
**National Sanitation Foundation**  
**3475 Plymouth Road**  
**P.O. Box 1468**  
**Ann Arbor, Michigan 48106 USA**



The mission of the National Sanitation Foundation is to develop and administer programs relating to public health and environment in areas of service, research, and education.

Standards and criteria, established and adopted by NSF as minimum voluntary consensus standards, are used internationally for relevant products and services:

- 1 Soda Fountain and Luncheonette Equipment
- 2 Food Service Equipment
- 3 Commercial Spray-Type Dishwashing Machines
- 4 Commercial Cooking and Hot Food Storage Equipment
- 5 Hot Water Generating and Heat Recovery Equipment
- 6 Dispensing Freezers
- 7 Food Service Refrigerators and Storage Freezers
- 8 Commercial Powered Food Preparation Equipment
- 12 Automatic Ice Making Equipment
- 13 Refuse Compactors and Compactor Systems
- 14 Plastics Piping Components and Related Materials
- 18 Manual Food and Beverage Dispensing Equipment
- 20 Commercial Bulk Milk Dispensing Equipment
- 21 Thermoplastic Refuse Containers
- 24 Plumbing System Components for Manufactured Homes and Recreational Vehicles
- 25 Vending Machines for Food and Beverages
- 26 Pot, Pan, and Utensil Washers
- 29 Detergent/Chemical Feeders for Commercial Spray-Type Dishwashing Machines
- 30 Cabinetry and Laboratory Furniture for Hospitals
- 35 Laminated Plastics for Surfacing Food Service Equipment
- 36 Dinnerware
- 37 Air Curtains for Entranceways in Food Establishments
- 40 Individual Aerobic Wastewater Treatment Plants
- 41 Wastewater Recycle/Reuse and Water Conservation Devices
- 42 Drinking Water Treatment Units - Aesthetic Effects
- 44 Cation Exchange Water Softeners
- 49 Class II (Laminar Flow) Biohazard Cabinetry
- 50 Circulation System Components for Swimming Pools, Spas, or Hot Tubs
- 51 Plastic Materials and Components Used in Food Equipment
- 52 Supplemental Flooring
- 53 Drinking Water Treatment Units - Health Effects
- 54 Flexible Membrane Liners
- 56 Pitless Well Adapters
- 58 Reverse Osmosis Drinking Water Treatment Systems
- 59 Food Carts
- 60 Drinking Water Treatment Chemicals - Health Effects
- 61 Drinking Water System Components - Health Effects
- 62 Drinking Water Distillation Systems
- C-2 Special Equipment and/or Devices
- C-9 Evaluation of Special Processes, Components, or Devices Used in Treating Wastewater

## THE NATIONAL SANITATION FOUNDATION

### Purpose and Organization

The National Sanitation Foundation, popularly referred to as NSF, is a nonofficial and noncommercial agency. It is incorporated under the laws of Michigan as a not-for-profit organization devoted to research, education, and service. It seeks to solve problems involving man and his environment. It wishes to promote health and enrich the quality of life through conserving and improving that environment. Its fundamental principle of operation is to serve as a neutral medium in which business and industry, official regulatory agencies, and the public come together to deal with problems involving products, equipment, procedures, and services related to health and the environment.

NSF is perhaps best known for its role in the developing of standards and criteria for equipment, products, and services that bear upon health. The NSF Mark is widely recognized as a sign that the article to which it is affixed complies with the applicable NSF standard. NSF conducts research; tests and evaluates equipment, products, and services for compliance with NSF standards and criteria; and grants and controls the use of the NSF Mark.

A brochure is available discussing in some detail the purpose, objectives, and philosophy of NSF and its standards and listing programs. It describes the way in which distinguished leaders from business, industry, public health, and related professions give generously of their time and talent in helping achieve NSF objectives. The brochure is available upon request.

## DISCLAIMERS

The National Sanitation Foundation (NSF), in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of NSF represent its professional judgement. NSF shall not be responsible to anyone for the use of or reliance upon this standard by anyone. NSF shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this standard.

NSF standards provide basic criteria to promote sanitation and protection of the public health. Provisions for safety have not been included in this standard because governmental agencies or other national standards-setting organizations provide safety requirements.

Participation in NSF standards development activities by regulatory agency representatives (federal, local, state) shall not constitute their agency's endorsement of NSF or any of its standards.

Preference is given to the use of performance criteria measurable by examination or testing in NSF standards development when such performance criteria may reasonably be used in lieu of design, materials, or construction criteria.

The illustrations, if provided, are intended to assist in understanding their adjacent standard requirements. However, the illustrations may not include all requirements for a specific product or unit, nor do they show the only method of fabricating such arrangements. Such partial drawings shall not be used to justify improper or incomplete design and construction.

Unless otherwise referenced, the appendices are not considered an integral part of NSF standards. The appendices are provided as general guidelines to the manufacturer, regulatory agency, user or certifying organization.

**NATIONAL SANITATION FOUNDATION  
STANDARD 2  
FOR  
FOOD SERVICE EQUIPMENT**

**SECTION 1. GENERAL**

- 1.0 **SCOPE:** This standard covers equipment commonly known as "fabricated food service equipment" (kitchen, bakery, pantry, and cafeteria units, and other food handling and processing equipment including tables and components, counters, shelves, sinks, hoods, etc.). It includes basic principles of design, construction, and performance necessary for easy cleanability, food protection, and freedom from harborage. This standard shall serve as a guide and in no way shall restrict new design, if the design does not fall below the minimum requirements. No attempt has been made to incorporate safety provisions.
- 1.1 **MINIMUM REQUIREMENTS:** These requirements are minimum; variations may be permitted when they make units more resistant to wear, corrosion, or more easily cleanable. Units with components or parts covered under other NSF standards or criteria shall comply with those applicable requirements.
- 1.2 **ALTERNATE MATERIALS:** Accepted materials, other than those specifically mentioned, may be permitted provided they are equally satisfactory from the standpoint of sanitation and food protection.
- 1.3 **STANDARD REVIEW:** This standard will be reviewed at least every five years to keep requirements consistent with new technology. The review will be conducted by representatives from the industry, public health, and user groups of the NSF Joint Committee on Food Equipment.

**SECTION 2. DEFINITIONS**

- 2.0 **ACCESSIBLE:** Fabricated to be exposed for cleaning and inspection using simple tools (such as screwdriver, pliers, open-end wrench).
- 2.0.1 **READILY ACCESSIBLE:** Fabricated to be exposed for cleaning and inspection without using tools.
- 2.1 **CLEANING:** Physical removal of residues of foods, ingredients, and other soiling materials.
- 2.1.1 **EASILY CLEANABLE:** Fabricated of materials, designed, and constructed so soil is removed by normal (non-mechanical) cleaning methods.
- 2.2 **CLOSED:** Fabricated with no openings exceeding 1/32 inch (0.8 mm).
- 2.3 **COATING:** Inorganic and/or organic layer of material applied to the surface of a substrate.

2.4 CONVEYOR: A mechanism for moving items between locations.

2.5 CORROSION RESISTANT: Capable of maintaining original surface characteristics under prolonged contact with the intended end use environment, and the normal use of cleaning compounds, and sanitizing solutions.

2.6 COVER: Protective device for a horizontal opening.

2.7 DISPLAY CASE: Enclosed case used to display and/or dispense unpackaged food.

2.8 DOOR: Protective device for a vertical opening.

2.9 ELECTRICALLY OPERATED HOT AND COLD FOOD TRANSPORT HOLDING CARTS AND CABINETS: Enclosures designed to be connected to a power source and intended for use in the transporting of the foods in the carts or cabinets at normal room ambient, and with reconnection to a power source.

2.10 FOOD: Any raw, cooked, or processed edible substance, ice, water, beverage, or ingredient intended for human consumption.

2.11 INSULATED ENCLOSED FOOD TRANSPORT CABINET: An enclosed cabinet capable of being transported and intended for the conveyance of foods that is not electrically operated. It shall not include mobile dish or utensil storage or dispensing equipment.

2.12 PORTABLE: Capable of being lifted and moved, carried or rolled.

2.13 REMOVABLE: Capable of being taken away from the main unit using only simple tools (such as screwdriver, pliers, open-end wrench).

2.13.1 READILY REMOVABLE: Capable of being taken away from the main unit without using tools.

2.14 SANITIZATION: Application of physical or chemical agents necessary to reduce microbial population on cleaned surfaces (including pathogens) to a safe level.

2.15 SEALED: Fabricated without openings to prevent entry or leakage of liquid.

2.16 SMOOTH: A surface free of pits and inclusions with a cleanability equal to or exceeding the following:

Food Zone: No. 3 (100 grit) finish on stainless steel

Splash and Nonfood Zones: Commercial grade, hot-rolled steel, free of visible scale

2.17 TOXIC: Having an adverse physiological effect on humans.

2.18 URN STAND: Fixed, portable, or wheeled stand to support a coffee, tea, or water urn. It does not include tables or stands for mounting small self-contained coffee brewers.

2.19 WHEELED FOOD SERVICE EQUIPMENT: Equipment on casters or wheels that can be easily moved for auxiliary food processing or service. It does not include licensed motor vehicles.

2.20 ZONES (CONTACT SURFACES):

2.20.1 FOOD ZONE: Surfaces that normally come into contact with food, and those surfaces from which food may drain, drip, or splash back onto surfaces that normally come into contact with food.

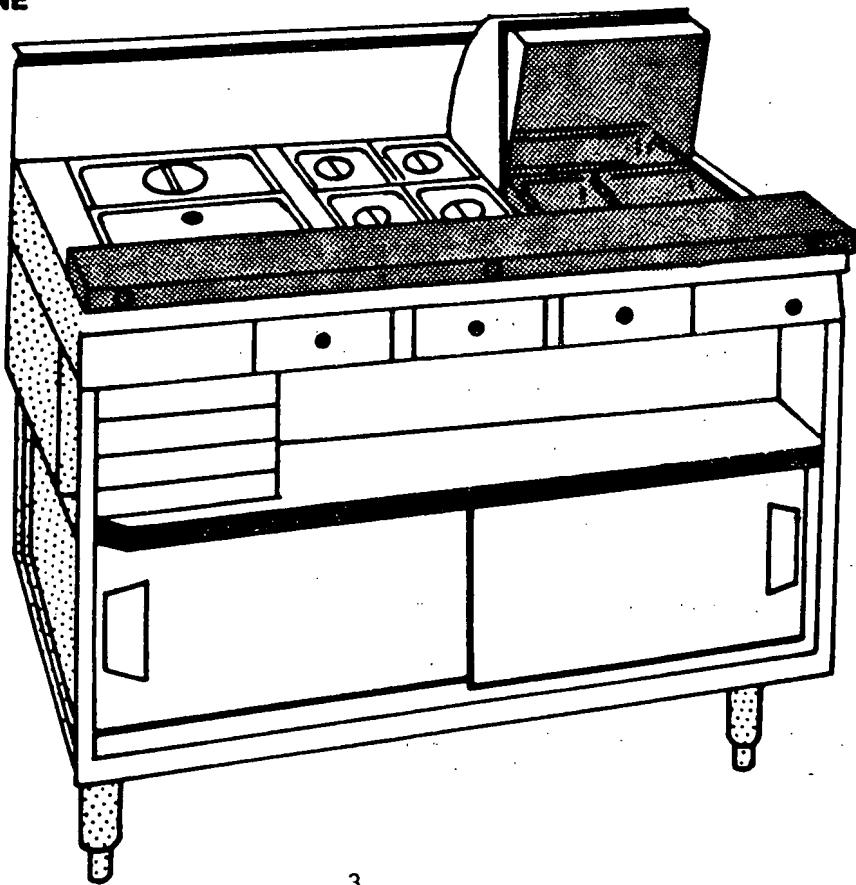
2.20.2 SPLASH ZONE: Surfaces, other than food zone, subject to routine splash, spillage, or other food soiling during normal use.

2.20.3 NONFOOD ZONE: All exposed surfaces other than food and splash zones.

**FOOD ZONE**

**SPLASH ZONE**

**NON-FOOD ZONE**



### SECTION 3. MATERIALS

- 3.0 GENERAL: Materials shall withstand normal wear, penetration of vermin, corrosive action of refrigerants, foods, cleaning and sanitizing compounds, and other elements in the intended end use environment.
- 3.1 FOOD ZONE: Food zone materials shall not impart toxic substances, odor, color, or taste to food. Exposed surfaces shall be smooth and easily cleanable. The requirements of the Federal Food, Drug, and Cosmetics Act, as amended, shall be used as a general guide. Plastics components shall comply with Standard 51: Plastic Materials and Components Used in Food Equipment. Polyethylene shall be considered acceptable for ice pans or bins. Cold plates constructed integrally with ice bins shall have a surface free of pits and voids, and a cleanability at least equal to rotationally molded polyethylene.
- 3.2 SPLASH ZONE: Splash zone materials shall be smooth, easily cleanable, and corrosion resistant, or rendered corrosion resistant with a material that is noncracking and nonchipping.
- 3.3 NONFOOD ZONE: Nonfood zone materials shall be smooth and corrosion resistant or rendered corrosion resistant. Coatings, if used, shall be noncracking and nonchipping.
- 3.4 SOLDER: Solder in food zones shall be formulated to be nontoxic and corrosion resistant under use conditions. Lead based solder shall not be used.
- 3.5 COATING: Coatings shall be formulated to meet the applicable requirements for the zone in which used.
- 3.6 PLASTICS RESIN SYSTEMS: Plastics resin systems may be used if they comply with the applicable requirements of Items 3.0, 3.1, 3.2, and 3.3.
- 3.7 WELDING: Welded seams and deposited weld material shall meet the applicable requirements of Item 3.0 and the zone in which they are used.
- 3.8 GASKETS AND PACKINGS: Gaskets and packings shall be resilient rubber, rubberlike materials, or plastic. They shall be nontoxic, stable, odor free, nonabsorbent, and unaffected by exposure to foods and cleaning compounds.
- 3.9 BREAKER STRIPS: Breaker strips shall comply with the material requirements for food zone.
- 3.10 SOUND DAMPING: Sound damping materials shall comply with the material requirements of the zone in which used except for smoothness. The material shall not chip, flake, or blister. Nonhardening types are not acceptable.
- 3.11 SCRAPPING BLOCKS: Scrapping blocks in soiled dish tables shall be resilient and grease resistant.

## CONTENTS

|   |     |
|---|-----|
| Current NSF Standards and Criteria .....                      | i   |
| National Sanitation Foundation Purpose and Organization ..... | iii |
| Disclaimers .....   | v   |

### SECTION 1. GENERAL

|                                |   |
|--------------------------------|---|
| 1.0 Scope .....                | 1 |
| 1.1 Minimum Requirements ..... | 1 |
| 1.2 Alternate Materials .....  | 1 |
| 1.3 Standard Review .....      | 1 |

### SECTION 2. DEFINITIONS

|  |   |
|--|---|
| 2.0 Accessible .....   | 1 |
| 2.0.1 Readily Accessible .....   | 1 |
| 2.1 Cleaning .....   | 1 |
| 2.1.1 Easily Cleanable .....   | 1 |
| 2.2 Closed .....   | 1 |
| 2.3 Coating .....  | 1 |
| 2.4 Conveyor .....   | 1 |
| 2.5 Corrosion Resistant .....  | 2 |
| 2.6 Cover .....  | 2 |
| 2.7 Display Case .....   | 2 |
| 2.8 Door .....   | 2 |
| 2.9 Electrically Operated Hot and Cold Food Transport Holding Carts and Cabinets ..... | 2 |
| 2.10 Food .....  | 2 |
| 2.11 Insulated Enclosed Food Transport Cabinet .....                                   | 2 |
| 2.12 Portable .....  | 2 |
| 2.13 Removable .....   | 2 |
| 2.13.1 Readily Removable .....   | 2 |
| 2.14 Sanitization .....  | 2 |
| 2.15 Sealed .....  | 2 |
| 2.16 Smooth .....  | 2 |
| 2.17 Toxic .....   | 2 |
| 2.18 Urn Stand .....   | 3 |
| 2.19 Wheeled Food Service Equipment .....  | 3 |
| 2.20 Zones .....   | 3 |
| 2.20.1 Food Zone .....   | 3 |
| 2.20.2 Splash Zone .....   | 3 |
| 2.20.3 Nonfood Zone .....  | 3 |

### SECTION 3. MATERIALS

|                                  |   |
|----------------------------------|---|
| 3.0 General .....                | 4 |
| 3.1 Food Zone .....              | 4 |
| 3.2 Splash Zone .....            | 4 |
| 3.3 Nonfood Zone .....           | 4 |
| 3.4 Solder .....                 | 4 |
| 3.5 Coating .....                | 4 |
| 3.6 Plastics Resin Systems ..... | 4 |
| 3.7 Welding .....                | 4 |

|      |   |   |
|------|---|---|
| 3.8  | Gaskets and Packings .....                      | 4 |
| 3.9  | Breaker Strips .....                            | 4 |
| 3.10 | Sound Damping .....                             | 4 |
| 3.11 | Scrapping Blocks .....                          | 4 |
| 3.12 | Wood-Top Bakers Tables and Cutting Boards ..... | 5 |
| 3.13 | Drawers .....                                   | 5 |
| 3.14 | Wood .....                                      | 5 |

#### SECTION 4. DESIGN AND CONSTRUCTION

##### FOOD ZONE

|     |   |   |
|-----|---|---|
| 4.0 | General .....                                       | 5 |
| 4.1 | Cleanability .....                                  | 5 |
| 4.2 | Function .....                                      | 6 |
| 4.3 | Corners or Angles - Internal .....                  | 6 |
| 4.4 | Internal Corners or Angles - Other Than Metal ..... | 7 |
| 4.5 | External Corners or Angles .....                    | 7 |
| 4.6 | Solder .....  | 7 |
| 4.7 | Welding .....                                       | 7 |
| 4.8 | Joints and Seams .....                              | 7 |
| 4.9 | Fastening Methods .....                             | 7 |

##### SPLASH AND NONFOOD ZONES

|      |                         |   |
|------|-------------------------|---|
| 4.10 | General .....           | 7 |
| 4.11 | Joints and Seams .....  | 7 |
| 4.12 | Fastening Methods ..... | 8 |
| 4.13 | Solder .....            | 8 |

##### GENERAL

|        |   |    |
|--------|---|----|
| 4.14   | Insulation .....                                | 8  |
| 4.15   | Reinforcing and Framing .....                   | 8  |
| 4.15.1 | Horizontal Angles .....                         | 8  |
| 4.15.2 | Vertical Channels .....                         | 8  |
| 4.16   | Fixed Panels .....                              | 9  |
| 4.16.1 | Removable Panels .....                          | 9  |
| 4.17   | Linings .....                                   | 9  |
| 4.18   | Finish .....                                    | 9  |
| 4.19   | Doors .....                                     | 9  |
| 4.19.1 | Single Panel .....                              | 9  |
| 4.19.2 | Double Panel .....                              | 9  |
| 4.19.3 | Door Gaskets .....                              | 10 |
| 4.19.4 | Glass Doors .....                               | 10 |
| 4.20   | Door Tracks and Guides .....                    | 11 |
| 4.21   | Covers .....                                    | 11 |
| 4.21.1 | Slotted Covers .....                            | 11 |
| 4.22   | Exposed Edges and Nosings .....                 | 12 |
| 4.23   | Field Joints .....                              | 13 |
| 4.24   | Openings and Rims (Food Zone) .....             | 13 |
| 4.25   | Openings to Food Waste Receptacle .....         | 13 |
| 4.25.1 | Openings to Food Waste Grinder (Disposer) ..... | 14 |
| 4.26   | Hardware .....                                  | 14 |

|        |   |    |
|--------|---|----|
| 4.27   | Breaker Strips .....  | 14 |
| 4.28   | Provisions for Mounting .....                                     | 14 |
| 4.28.1 | Sealed .....  | 14 |
| 4.28.2 | Legs .....  | 14 |
| 4.28.3 | Casters, Rollers, or Gliders .....                                | 14 |
| 4.28.4 | Portable .....  | 14 |
| 4.28.5 | Counter and Table Units .....                                     | 14 |
| 4.29   | Legs and Feet .....   | 15 |
| 4.30   | Open Display Stands and Brackets .....                            | 15 |
| 4.30.1 | Display Stands .....  | 15 |
| 4.30.2 | Brackets .....  | 15 |
| 4.31   | Counter Tray Slides .....   | 16 |
| 4.32   | Shelving .....  | 16 |
| 4.32.1 | Readily Removable Shelves .....                                   | 16 |
| 4.32.2 | Diverting Shelves .....   | 16 |
| 4.32.3 | Interior Fixed Shelving .....                                     | 16 |
| 4.32.4 | Shelf Brackets, Pilasters, Slides, or Cleats .....                | 16 |
| 4.32.5 | Knock-Down Shelving, Joints and Seams, Pressure<br>Cleaning ..... | 17 |
| 4.33   | Waste and Water Fittings .....                                    | 17 |
| 4.33.1 | Drains for Steam Tables and Bains-Marie (Wet Type) .....          | 17 |
| 4.34   | Water Inlets .....  | 18 |
| 4.35   | Placement of Drainage Pipes .....                                 | 18 |
| 4.36   | Pipe Chases .....   | 18 |
| 4.36.1 | Enclosed Spaces .....   | 19 |
| 4.37   | Sealants .....  | 19 |
| 4.38   | Temperature Indicating Devices (Including Thermometers) .....     | 19 |

#### ITEMS OF SPECIAL SANITARY SIGNIFICANCE

|        |  |    |
|--------|--|----|
| 4.39   | Food and Flatware Containers and Drawers .....                       | 19 |
| 4.40   | Pots, Pans, and Utensils .....                                       | 19 |
| 4.41   | Insets .....   | 19 |
| 4.42   | Bins .....   | 20 |
| 4.43   | Drawers .....  | 20 |
| 4.44   | Flatware Dispensers .....  | 20 |
| 4.45   | Display Cases .....  | 20 |
| 4.46   | Food Shields .....   | 20 |
| 4.47   | Self-Leveling Storage Systems .....                                  | 22 |
| 4.48   | Sinks .....  | 22 |
| 4.48.1 | Sinks - Drains and Overflows .....                                   | 22 |
| 4.49   | Dish Tables and Drainboards .....                                    | 23 |
| 4.50   | Sound Damping .....  | 23 |
| 4.51   | Drainboard Space .....   | 24 |
| 4.51.1 | Divided Drainboard .....   | 24 |
| 4.52   | Auxiliary Cleaning Facilities and Accessories .....                  | 24 |
| 4.52.1 | Dump Sinks .....   | 24 |
| 4.52.2 | Scraping Blocks .....  | 24 |
| 4.52.3 | Table Scuppers .....   | 24 |
| 4.52.4 | Table Scuppers and Dump Sinks .....                                  | 25 |
| 4.53   | Splash Backs .....   | 25 |
| 4.54   | Tops of Counters, Tables, and Back Bars .....                        | 25 |
| 4.55   | Tops of Steam Tables with Water Pans and Tables with Cold Pans ..... | 26 |

|      |  |    |
|------|--|----|
| 4.56 | Urn Stands .....                                     | 26 |
| 4.57 | Water Stations .....                                 | 26 |
| 4.58 | Dipper Wells .....                                   | 27 |
| 4.59 | Canopies and Hoods .....                             | 27 |
|      | 4.59.1  Curtain-Type .....                           | 27 |
|      | 4.59.2  Open-Type Hoods .....                        | 27 |
|      | 4.59.3  Plenum-Type Hoods With Filters .....         | 27 |
|      | 4.59.4  Plenum-Type Hoods Without Filters .....      | 27 |
| 4.60 | Wood-Top Bakers Tables and Cutting Boards .....      | 28 |
|      | 4.60.1  Size .....                                   | 28 |
|      | 4.60.2  Lamination Width .....                       | 28 |
|      | 4.60.3  Bond Surfaces .....                          | 28 |
|      | 4.60.4  Lamination Surfaces .....                    | 28 |
|      | 4.60.5  Adhesives .....                              | 28 |
|      | 4.60.6  Bonding .....                                | 28 |
|      | 4.60.7  Finish .....                                 | 28 |
|      | 4.60.8  Expansion .....                              | 28 |
|      | 4.60.9  Installation and Cleaning Instructions ..... | 28 |
| 4.61 | Ice Pans and Bins .....                              | 29 |
| 4.62 | Carbonators .....                                    | 29 |
| 4.63 | Water Inlets and Storage .....                       | 29 |
| 4.64 | Check Valves .....                                   | 30 |

#### SECTION 5. WHEELED FOOD SERVICE EQUIPMENT

|     |                            |    |
|-----|----------------------------|----|
| 5.0 | General .....              | 30 |
| 5.1 | Pan Wells .....            | 30 |
| 5.2 | Cleaning (Automatic) ..... | 30 |
| 5.3 | Drains .....               | 30 |

#### SECTION 6. CONVEYORS

|     |                                   |    |
|-----|-----------------------------------|----|
| 6.0 | Conveyors .....                   | 30 |
| 6.1 | Materials .....                   | 30 |
| 6.2 | Mechanical Cleaning Devices ..... | 30 |
| 6.3 | Cleanability .....                | 30 |
| 6.4 | Drains .....                      | 31 |
| 6.5 | Motors .....                      | 31 |

#### SECTION 7. ENCLOSED FOOD TRANSPORT CARTS AND CABINETS

|     |   |    |
|-----|---|----|
| 7.0 | General .....   | 31 |
| 7.1 | Cleaning Instructions .....   | 31 |
| 7.2 | Joints and Seams, Manual Cleaning .....   | 31 |
| 7.3 | Joints and Seams, Pressure Cleaning .....   | 31 |
| 7.4 | Insulation .....  | 31 |
| 7.5 | Hinges .....  | 31 |
| 7.6 | Caster Treads .....   | 32 |
| 7.7 | Performance Requirements - Electrically Operated Hot and Cold Food Transport Holding Carts and Cabinets ..... | 32 |
|     | 7.7.1  Cold Food Holding Equipment .....  | 32 |
|     | 7.7.2  Hot Food Holding Equipment .....   | 32 |

|  |    |
|--|----|
| <b>Appendix A</b> - Performance Test Procedures for Electrically Operated Hot and Cold Food Transport Holding Carts and Cabinets ..... | A1 |
| <b>Appendix B</b> - Adhesive Bond Test .....   | B1 |
| <b>Appendix C</b> - Participating Committees   |    |
| National Sanitation Foundation Joint Committee On Food Equipment .....   | C1 |
| National Sanitation Foundation Council of Public Health Consultants .....  | C3 |

3.12 WOOD-TOP BAKERS TABLES AND CUTTING BOARDS: Wood-top bakers tables and cutting boards shall be of wood having minute anatomy of between 4 and 13 vessels per square millimeter with a vessel diameter between 180 and 250 microns. The wood shall, in addition, be nontoxic and shall not impart odor, color, or taste nor contribute to the adulteration of foods. The wood shall be kiln dried to 6 - 8 percent moisture content by weight after conditioning to remove stresses, case hardened and other drying defects, and shall have a weight per cubic foot of not less than 43.4 pounds (696 kilograms per cubic meter). The wood shall have sufficient hardness to withstand the imbedding of a  $0.44 + .02$  inch ( $11.1 + .5$  mm) steel ball to not more than 1/2 of its diameter by a force of 1200 pounds (540 kilograms) and shall have a shearing strength of at least 1800 psi (12.4 MPa) parallel to the grain.

3.13 DRAWERS: Drawers and containers intended only for utensil storage shall meet the materials requirements of Item 3.2. Drawers with food contact surfaces shall meet the requirements of Item 3.1.

3.14 WOOD: Exposed wood for structural, nondecorative purposes is not acceptable. Finished wood is acceptable, on a limited basis for decorative purposes on service and display area equipment. Its use shall be limited to splash and nonfood zones, provided all exposed surfaces are sealed, smooth, and not subject to excessive moisture or wear. Use of decorative wood on horizontal surfaces shall be limited to nonwearing surfaces.

#### SECTION 4. DESIGN AND CONSTRUCTION

##### FOOD ZONE

4.0 GENERAL: Food service equipment and appurtenances shall be fabricated to exclude vermin, dust, dirt, splash, or spillage as may be encountered under normal use, and shall be easily cleaned, maintained, and serviced.

4.1 CLEANABILITY: Food zones shall be readily accessible and easily cleanable.

---

<sup>1</sup>Material requirements for the splash zone permit the use of galvanized surfaces.

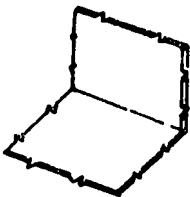
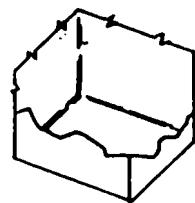
4.1.1 When food zones are not readily removable and in-place cleaning is intended, tubing, pipe, fittings, and valves shall be arranged so cleaning and sanitizing solutions can be circulated throughout the fixed system. The solutions shall contact all interior surfaces. The system shall be self-draining or otherwise completely evacuated. The manufacturer's recommended cleaning procedures shall result in thorough cleaning of the equipment. Equipment and appurtenances designed for in-place cleaning shall have a section of the portion cleaned in place accessible for inspection or provide other acceptable inspection methods.

4.2 FUNCTION: Food service equipment and appurtenances shall be fabricated so ingredients can be added and the finished food dispensed, removed, or served in a sanitary manner.

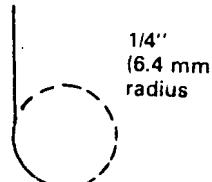
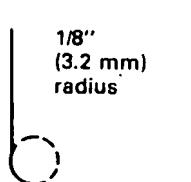
4.3 CORNERS OR ANGLES - INTERNAL: All internal angles or corners (of two or more planes at  $135^\circ$  [2.4 rad] or less) shall be fabricated to conform with the following:

4.3.1 An internal angle formed by the intersection of two planes shall have a minimum continuous and smooth radius of  $1/8$  inch (3.2 mm).

4.3.2 An internal corner formed by the intersection of three planes (at  $135^\circ$  [2.4 rad] or less) shall have a minimum continuous and smooth radius of  $1/4$  inch (6.4 mm) for a vertical or horizontal intersection, the alternate intersection shall be constructed with a minimum continuous and smooth radius of  $1/8$  inch (3.2 mm).



Intersection of three planes (internal corner): Two intersections may have a minimum radius of  $1/8$ " (3.2 mm); the third must have a minimum radius of  $1/4$ " (6.4 mm).



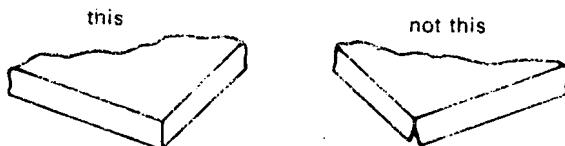
CORNERS OR ANGLES — INTERNAL

Intersection of two planes:  $1/8$ " (3.2 mm) minimum radius — vertical or horizontal; use of solder or fillet material to obtain the desired internal radius is not acceptable (Item 4.46).

4.4 INTERNAL CORNERS OR ANGLES - OTHER THAN METAL: For materials other than metal, the radii specified in Items 4.3.1 and 4.3.2 shall be effected using parent material or a material proven to be bonded and otherwise equal or better than the parent material.

4.5 EXTERNAL CORNERS OR ANGLES: Exposed external corners or angles shall be sealed and smooth.

External corners or angles shall be sealed and finished smooth.



4.6 SOLDER: Solder, if used, shall be smooth and securely bonded to the metal so it will not crack or chip. Flux and catalytic material shall be removed.

4.7 WELDING: Welded areas in surfaces requiring routine cleaning shall be smooth and corrosion resistant.

4.8 JOINTS AND SEAMS: Joints and seams shall be sealed and smooth. If practical, equipment or parts in the food zone shall be stamped, extruded, formed, or cast in one piece.

4.9 FASTENING METHODS (FOOD ZONE): Exposed threads; screw, bolt, and rivet heads; nuts and studs shall be eliminated from the food zone.

#### **SPLASH AND NONFOOD ZONES**

4.10 GENERAL: Food service equipment and appurtenances shall be fabricated to minimize retention of moisture and dust, shelter of vermin and dirt, and facilitate inspection, servicing, maintenance, and cleaning.

4.11 JOINTS AND SEAMS: In the splash zone, all joints and seams shall be sealed and smooth. Joints shall be fabricated to eliminate dirt-catching, horizontal ledges. Joints and seams in the nonfood zone shall be closed, and where exposed to seepage and condensation, sealed and smooth.

4.11.1 The requirements of Item 4.11 shall not apply to seams at the juncture of the leg and the shelf of knock-down shelving; however, these joints and seams shall be closed. Where solid shelving is provided, the seam between the leg and shelf shall be equal to or above the flood level of the shelf, and the seam shall be designed to minimize accumulation of splash and spillage. Joints may be made by overlapping sheets of material in a vertical plane to eliminate dirt-catching horizontal ledges. Joints and seams shall be fabricated to minimize entrance and accumulation of seepage, condensation, or food spillage.

4.12 FASTENING METHODS (SPLASH AND NONFOOD ZONES): Exposed threads, projecting screws, and studs may be used in the splash and nonfood zones only when other fastening methods are impractical. Exposed screw, bolt, or rivet heads in the splash zone shall be low profile.

4.13 SOLDER: Solder, if used, shall be smooth and securely bonded to the metal so it will not crack or chip. Flux and catalytic material shall be removed.

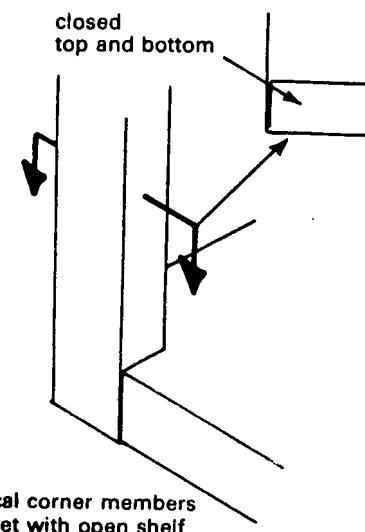
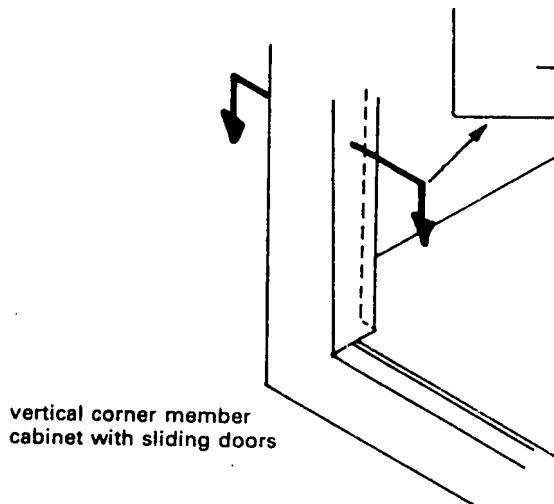
#### GENERAL

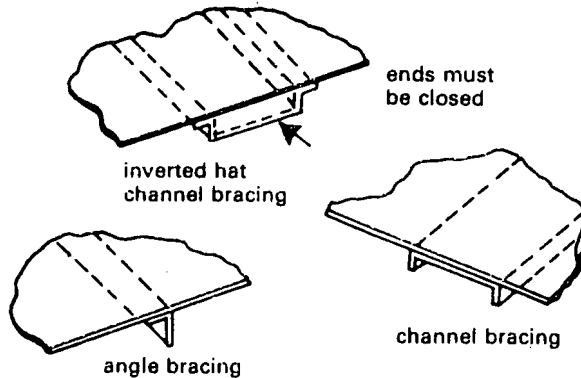
4.14 INSULATION: Insulation spaces shall be closed, sealed and protected against splash, spillage and seepage.

4.15 REINFORCING AND FRAMING: Reinforcing and framing members not totally enclosed or within walls shall be easily cleanable. Reinforcing and framing members shall be fabricated to prevent harborage of vermin. The ends of hollow sections shall be closed.

4.15.1 HORIZONTAL ANGLES: Horizontal angles of reinforcing and framing members and gussets shall not be placed where debris may accumulate. The horizontal angles shall have one leg turned down if the equipment permits, or be formed integral with the sides for use with removable shelves or drawer slides.

4.15.2 VERTICAL CHANNELS: Vertical channels shall be either completely closed or open to the floor.





#### REINFORCING AND FRAMING MEMBERS UNDER TOPS AND SHELVING

4.16 **FIXED PANELS:** Fixed panels shall be designed, constructed, and fastened to minimize projections and openings.

4.16.1 **REMOVABLE PANELS:** Where necessary for inspection and maintenance, easily removable panels shall be provided. They shall be sized for the purpose intended and constructed so one person can handle them. Removable panels shall conform with the applicable requirements for the zone in which used.

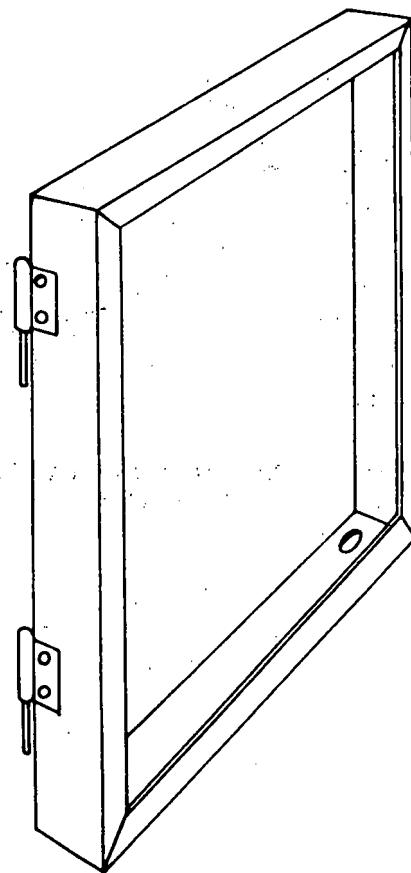
4.17 **LININGS:** Bottoms or gutters of linings in fixtures requiring drainage shall be self-draining.

4.18 **FINISH:** Coatings may be used in nonfood zones if they improve sanitation. Nonwearing surfaces, subject to corrosion, that require cleaning shall be rendered corrosion resistant.

4.19 **DOORS:** Doors shall be sized to fit the opening and shall close properly. Doors that enclose openings and provide access to interior compartments may be single or double panel construction. Sliding doors, when used, shall slide freely and be readily removable. Hinges in the food or splash zone shall be easily cleanable and/or of simple take-apart design and construction. Continuous (piano) hinges are not permissible in the food or splash zone.

4.19.1 **SINGLE PANEL:** Single panel doors shall be fabricated to minimize the collection of foreign matter, and if possible, be designed without channel sections at the bottom. Channel sections, if used, shall be inverted, or shallow and wide enough to be easily cleanable. Clean-outs shall be provided in channels which are not inverted.

4.19.2 **DOUBLE PANEL:** Double panel doors shall be fabricated to minimize the collection of foreign matter. Insulated sections shall be sealed.

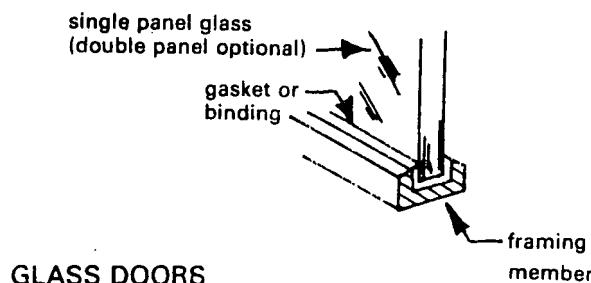
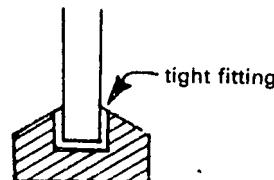


Channel sections shall be shallow and wide enough to be easily cleanable, with clean-out holes.

SINGLE PANEL DOOR

4.19.3 DOOR GASKETS: Door gaskets used on insulated doors shall be easily cleanable and removable for replacement.

4.19.4 GLASS DOORS: Exposed edges of glass doors shall be protected against chipping by protective channels or suitable stripping, or heat tempered glass shall be used, with edges ground smooth. If protective channels are used, they shall be tight fitting.



GLASS DOORS

4.20 DOOR TRACKS AND GUIDES: Door tracks and guides shall be fabricated to minimize the collection of condensation and debris, and be easily cleanable. Deep-type bottom channel tracks shall not be used. Door tracks and guides shall be designed to:

- Provide clear open slots, continuous or at intervals; **or**
- Provide clean-out holes at ends of track or guide; **or**
- Terminate at least 1/2 inch (12.7 mm) short of framing at each end; **or**
- Be integral with interior bottoms, without square corners; **or**
- Have overhead door suspensions with lower guides integral with bottoms; **or**
- Provide readily removable T-strips in channel-type bottom tracks.

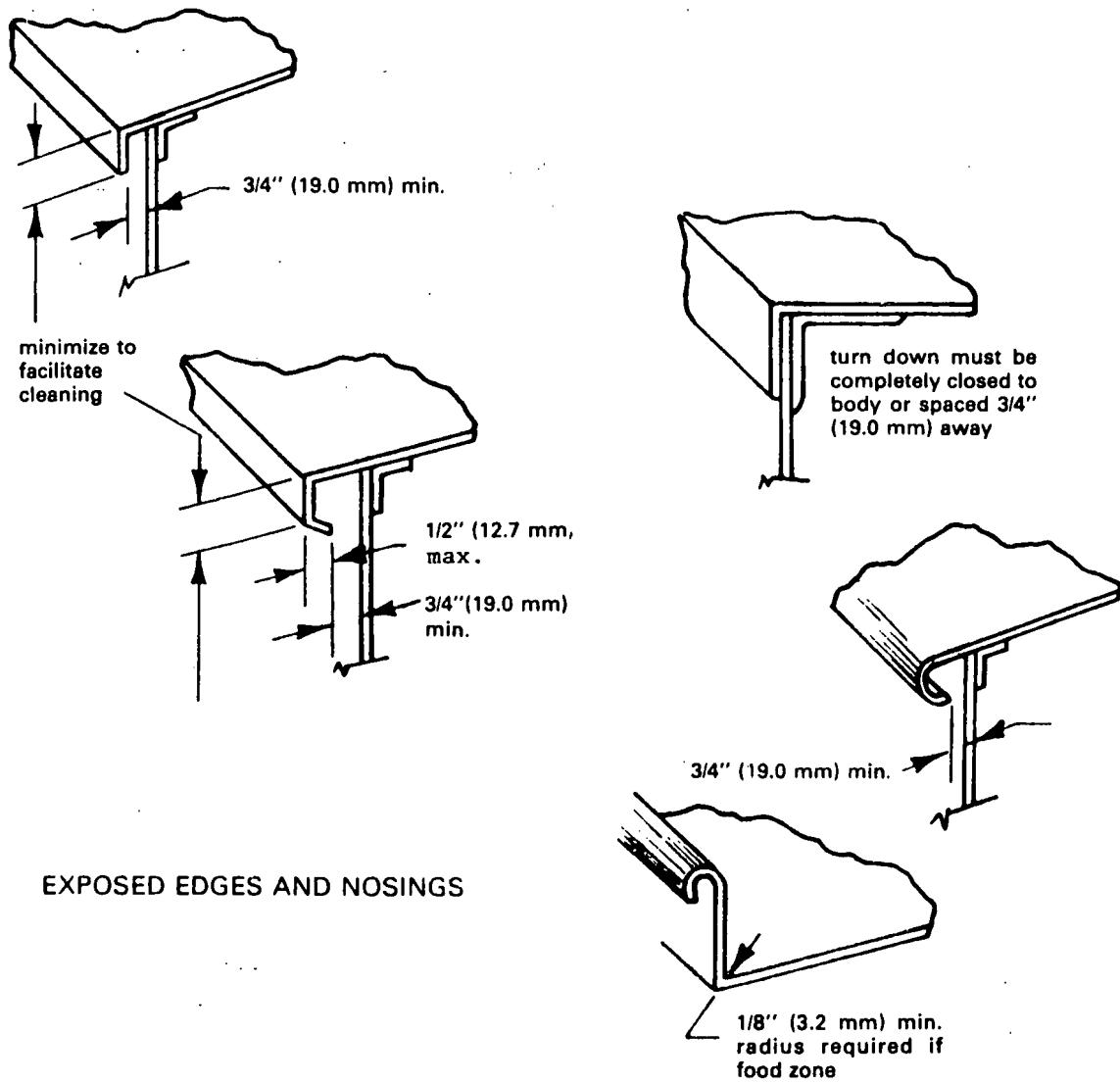
4.21 COVERS: Covers to protect the food zone shall have a flange which overlaps the opening, and shall be sloped to provide drainage from the cover surface. Any port opening through the covers shall be flanged upward at least 3/16 inch (4.8 mm) and shall have a cover overlapping the flange. Covers shall be designed to avoid contact with foods and shall be readily removable as a unit or in sections, and comply with the following requirements:

- Hinges of pivots shall be easily cleanable and/or of simple take-apart design and construction.
- Lid assemblies shall be free of cracks, crevices or openings. The lid assembly shall be designed for adequate cleaning and sanitizing.
- Continuous, e.g., piano or fixed pin, hinges shall not be used in the food or splash zones.
- Sliding or hinged covers shall protect the food zone from contamination. They shall be fabricated to prevent accumulation of liquid or debris on covers and not contaminate the food zone during opening or closing.
- Hood mountings shall be accessible or readily accessible for cleaning. Fixed pin hinges may be used on covered pitchers if they are hinged, offset and protected from splash and spillage.

4.21.1 SLOTTED COVERS: Slotted covers, with a serving utensil remaining in the food are exempt from Item 4.21 and shall comply with the following requirements:

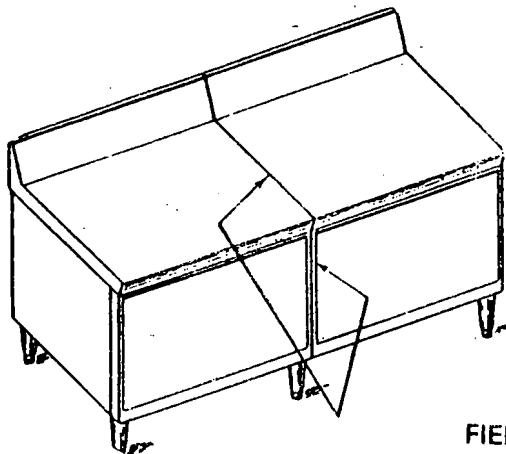
- Slotted opening(s) shall not be larger than 1-1/2 inches by 1 inch (38.1 mm by 25.4 mm) and shall be completely protected by a 3/16 inch (4.8 mm) minimum raised rim.

4.22 EXPOSED EDGES AND NOSINGS: Exposed edges and nosings on horizontal surfaces shall be integral with tops, regardless of profiles. Where exposed to fingers and cleaning, they shall be made smooth. Nosings shall be open  $3/4$  inch (19.1 mm), or completely closed against the body of the unit on all sides to prevent harborage of insects. Where edges of tops or shelves are flanged down and turned back, the return under-flange shall be less than  $1/2$  inch (12.7 mm) and angled down. The space between the top and the flange shall be at least  $3/4$  inch (19.1 mm). The space between the sheared edge and frame angle or cabinet body shall be at least  $3/4$  inch (19.1 mm) to provide access for cleaning.



EXPOSED EDGES AND NOSINGS

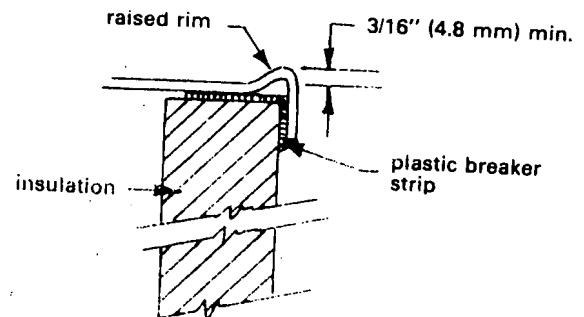
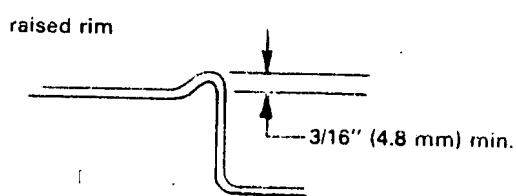
4.23 FIELD JOINTS: Field joints shall be made sanitary using trim strips, welded, soldered, properly designed draw fastening, or other methods complying with Items 1.1 and 1.2. Field joints shall be smooth and strong enough to insure against breaking open in normal use.



FIELD JOINTS

Where equipment is intended to be joined in the field, the resulting seam shall meet the applicable requirements of Item 4.8 or 4.11.

4.24 OPENINGS AND RIMS (FOOD ZONE): Openings and rims to food zones shall be protected by a raised rim at least 3/16 inch (4.8 mm) above the level to which liquids may accumulate.



OPENINGS AND RIMS --- FOOD ZONE

4.25 OPENINGS TO FOOD WASTE RECEPTACLE: The dish table opening to the waste receptacle shall have a water-tight, turned-down edge extending at least 1/2 inch (12.7 mm) below the bottom of the table top, or a raised rim at least 3/8 inch (9.5 mm) above the table surface. Both may be provided.

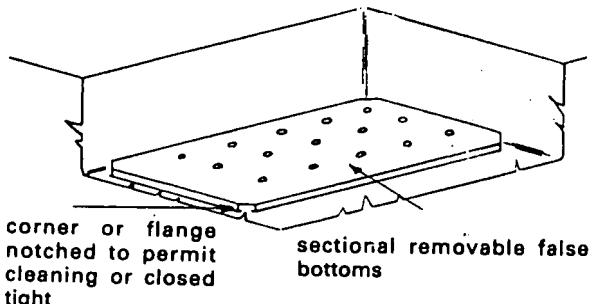
4.31 COUNTER TRAY SLIDES: Counter tray slides shall comply with the general requirements for the zone in which used and may be tubular or solid (see Item 4.30).

4.32 SHELVING: Shelving shall be easily cleanable.

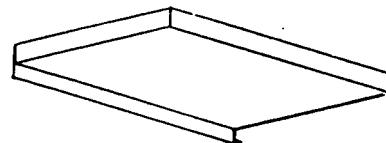
4.32.1 READILY REMOVABLE SHELVES: Readily removable shelves shall be sized to facilitate handling by one person. Shelves, when used as removable false bottoms, shall have closed or sufficiently open flanged corners to permit cleaning.

4.32.2 DIVERTING SHELVES: Diverting shelves intended to prevent seepage or retain splash and/or spillage shall have the back and ends turned up a minimum of 1 inch (25.4 mm) and have corners and seams sealed. Shelf surfaces exposed to unpackaged foods shall conform with Item 4.3, Internal Corners or Angles.

#### DIVERTING SHELVES



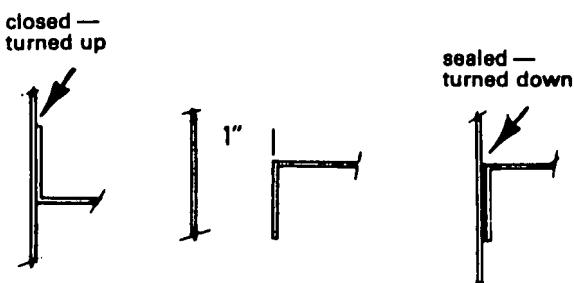
PERFORATED FALSE BOTTOM



Where shelves are intended to prevent seepage, as when set into interiors, back and ends shall turn up 1 inch (25.4 mm) minimum - made with sealed corners.

Where shelves are exposed to unpackaged food, corners shall conform to Item 4.3.

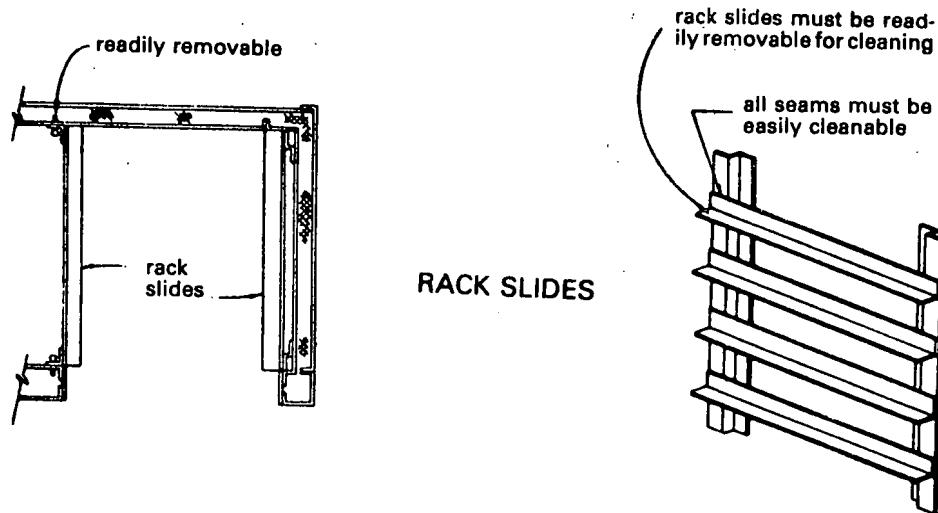
4.32.3 INTERIOR FIXED SHELVING: Interior fixed shelving shall have the back and ends (against the side panels) turned up a minimum of 1 inch (25.4 mm) and be closed throughout the length; or an open space of 1 inch (25.4 mm) shall be provided between the back and/or side panels; or the resulting joint and seam shall be sealed.



INTERIOR FIXED SHELVES

Fixed shelving shall have the back and ends (where against the side panels) turned up a minimum of 1 inch (25.4 mm) and closed throughout their length, or an open space of 1 inch (25.4 mm) provided between the shelf and back or side panels, or the resulting joint and seam sealed.

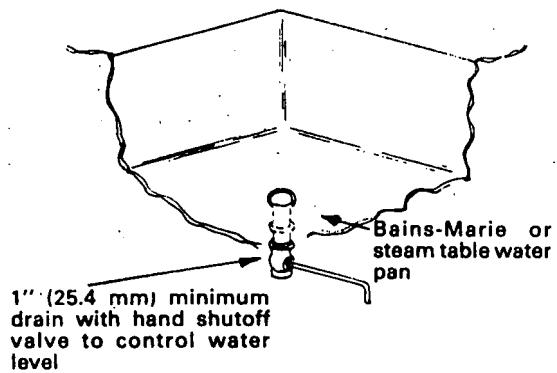
4.32.4 SHELF BRACKETS, PILASTERS, SLIDES, OR CLEATS: When adjustable shelving is provided, shelf support brackets and pilasters shall be readily removable and easily cleanable. Where refrigerator cases and similar items are designed for trays or pans, the supporting slides or cleats shall be made integral with the lining, or shall be readily removable for cleaning.



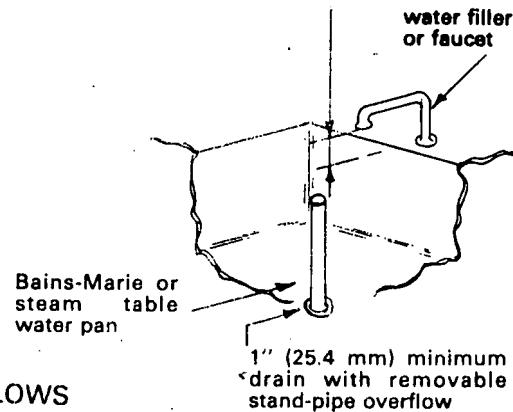
4.32.5 KNOCK-DOWN SHELVING, JOINTS AND SEAMS, PRESSURE CLEANING: If pressure cleaning is recommended for knock-down shelving, joints and seams shall be sealed or fabricated to be accessible for cleaning and capable of being completely drained. Joints and seams shall be minimized. Joints may be made by overlapping sheets of material in a vertical plane to eliminate dirt-catching horizontal ledges. Joints and seams shall be fabricated to minimize the entrance and accumulation of seepage, condensation, or food spillage.

4.33 WASTE AND WATER FITTINGS: Waste and water fittings attached to the equipment shall comply with the material requirements for the applicable zones.

4.33.1 DRAINS FOR STEAM TABLES AND BAINS-MARIE (WET-TYPE): Drains shall be required for water pans or bins which are not readily removable for draining and cleaning. Drains for water pans shall be a minimum of 1 inch (25.4 mm) IPS with either a valve or an overflow to control the water level. Water pans holding 1 gallon (3.8 L) or less under use condition will be acceptable without a drain. However, if a drain is provided, it shall be a minimum of 1/2 inch (12.7 mm) IPS.

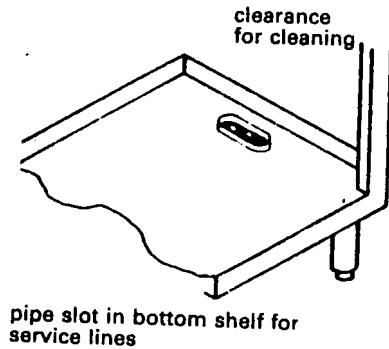


water filler shall be a minimum of twice the diameter of the water inlet, but never less than 1" (25.4 mm) above the flood level rim

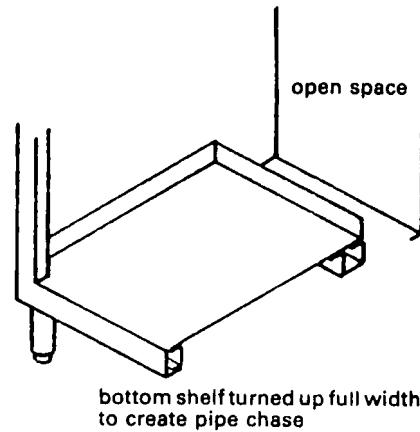


### DRAINS AND OVERFLOWS

- 4.34 WATER INLETS: Water inlets intended to be connected to the building plumbing system shall comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA).
- 4.35 PLACEMENT OF DRAINAGE PIPES: Drain connections shall be located to facilitate installation with a minimum of horizontal piping under equipment.
- 4.36 PIPE CHASES: Pipe chases for vertical gas, steam, electrical, and plumbing lines shall be constructed with removable access panels where possible. Pipe chases shall be designed to eliminate vermin harborage.



### PIPE CHASES



- 4.36.1 **ENCLOSED SPACES:** Enclosed spaces shall be sealed or provided with readily removable access panels. Removable panels shall be provided where condensation is likely to occur within an enclosed space.
- 4.37 **SEALANTS:** Sealants shall comply with the applicable requirements of Items 3.0, 3.1, 3.2, and 3.3. They shall be used only on structurally sound joints and seams no greater than 1/8 inch (3.2 mm) in width and depth. Sealants may be used to fill spaces around collars, grommets and service and utility connections.
- 4.38 **TEMPERATURE INDICATING DEVICES (INCLUDING THERMOMETERS):** Temperature indicating devices shall be provided for each temperature zone. These devices shall be graduated in 2° F increments and shall have an accuracy of  $\pm 3^{\circ}$  F ( $\pm 1^{\circ}$  C) at the critical range, be easy to read, securely mounted, or removable, and clearly visible. The sensing element shall be easily cleanable and located to reflect the air temperature of the warmest (if refrigerated) or the coldest (if heated) part of the cabinet where food is normally stored. Equipment where it is impractical to install thermometers (bainsmarie, steam tables, steam kettles, heat lamps, cal-rod units, portable insulated food transport carriers, etc.) are exempt from these requirements.

#### **ITEMS OF SPECIAL SANITARY SIGNIFICANCE**

Items of special sanitary significance shall comply with the applicable requirements of Items 1.0 through 4.38. In addition, they shall conform to the following specific requirements.

- 4.39 **FOOD AND FLATWARE CONTAINERS AND DRAWERS:** Food containers and drawers in the food zone shall be of coved construction (Items 4.3.1 and 4.3.2), and shall be smooth and welded or die-stamped. Fillet material and solder shall not be used to fillet or cove the angles or corners.
- 4.40 **POTS, PANS, AND UTENSILS:** Pots, pans, and other utensils shall be constructed to comply with the following specific items:
  - 4.40.1 Rims of pots and pans shall be easily cleanable. Rolled-type beads shall be closed and sealed.
  - 4.40.2 Handles and handle assembly parts shall be attached to the pot, pan, or utensil to eliminate inaccessible cleaning areas, recesses, and open seams.
  - 4.40.3 Low profile pan head or truss head fasteners may be used to fasten handles (knobs) to lids provided the assembly is readily removable. Low profile rivets, attached without open joints and seams, may be used to fasten handles to the pots, pans, and lids.
- 4.41 **INSETS:** Insets or receptacles for unpackaged moist foods and beverages shall be readily removable, drainable, and easily cleanable. These containers shall be of open-mouth type, covered, and conform to the requirements of Item 4.39.

4.47 SELF-LEVELING STORAGE SYSTEMS: Parts of the leveling mechanism, system, or device shall be readily accessible or shall be shielded by a protective sleeve or panel to guard against dirt, splash, spillage, or contact with food.

4.47.1 High tension springs shall have at least 2-wire diameter spacing between coils or shall be readily removable and easily cleanable.

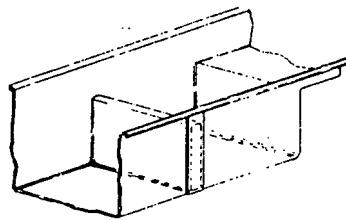
4.47.2 Low tension springs, that can be easily elongated by hand, are exempt from 4.47.1.

4.48 SINKS: Sinks shall be fabricated to comply with the following requirements:

- Sink bowls and partitions shall be considered food zone and shall be fabricated to comply with Item 4.3. Solder or fillet material shall not be used to obtain the specified radius.
- The space between sink bowls shall be completely filled, sealed, or open a minimum of 2 inches (50.1 mm) at front, bottom, and back of each sink bowl.
- Splash backs - when supplied shall conform to Item 4.53.
- Drainboards shall be integrally welded to the sink bowl, when provided. Drainboards shall have all edges turned up at least 1/2 inch (12.7 mm) and have a minimum pitch of 1/8 inch (3.2 mm) per foot (304.8 mm). Drainage shall be directed to the sink bowl to prevent contamination. Dish tables and drainboards, when provided, shall be supported to prevent sagging. Drainboards, if provided, shall not be sized less than the smallest dimension (left to right) of the sink bowl.
- Field joints shall comply with Items 4.8 and 4.23.
- Self-rimmed type warewashing and food preparation sinks shall not be acceptable.

4.48.1 SINKS - DRAINS AND OVERFLOWS: Sink drains and overflows may include removable strainer with or without remote drainage control. Overflow gutters or drains between two sink compartment bowls, if provided, shall be a minimum of 4 inches (101.4 mm) wide, and fitted with a removable strainer plate or basket. Drains shall be a minimum of 1-1/2 inches (38.1 mm) Iron Pipe Size. Fountain and underbar sink drains shall be at least 1 inch (25.4 mm) IPS.

sinks or sink bowls  
including partitions  
are considered  
food zone

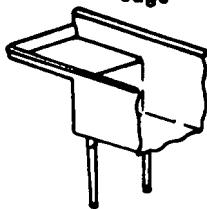


when space between sink bodies is less than 2" (50.8 mm), the front, bottom and back of opening must be sealed

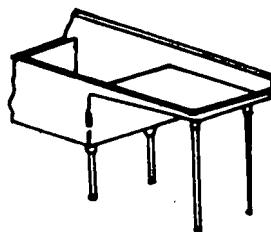
## SINKS

4.49 DISH TABLES AND DRAINBOARDS: Dish tables and drainboards shall be drawn or welded to conform with Items 4.3.1 and 4.3.2. The use of solder or fillet material to obtain the desired radius is not acceptable. Dish tables and drainboards shall have edges turned up at least 1/2 inch (12.7 mm) and a minimum pitch of 1/8 inch (3.2 mm) per foot (0.3 m). Drainage shall be directed to prevent contamination of other areas. Dish tables and drainboards shall be supported to prevent sagging, be integral with sinks and comply with Items 4.8 and 4.23.

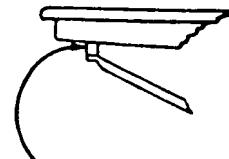
1/2" (12.7 mm)  
minimum  
turned up  
edge



drainboard pitched 1/8" (3.2 mm) per foot minimum  
toward sink



shall be supported in such  
a manner as to prevent  
sagging, and be integral  
with sinks

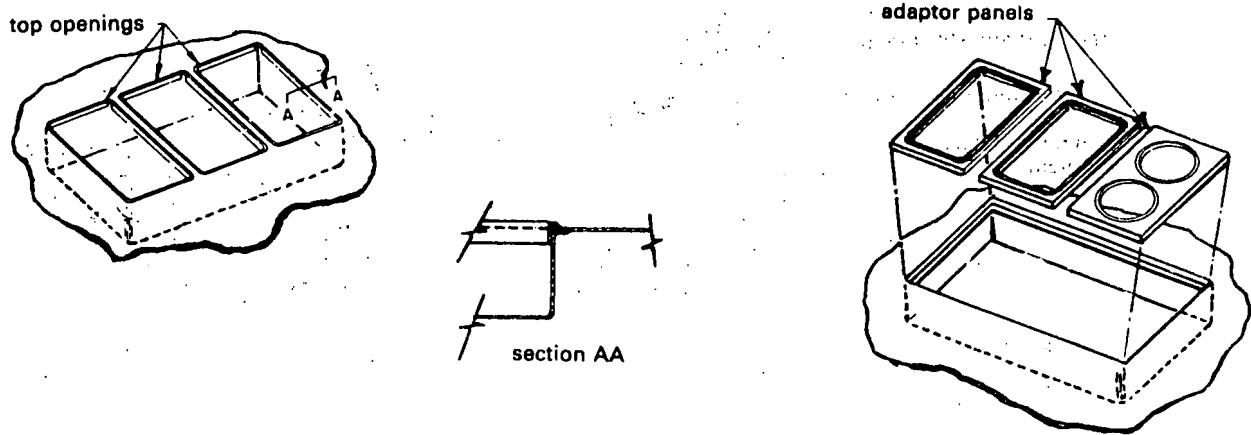


spacer to avoid acute  
angles

## DISHTABLES AND DRAINBOARDS

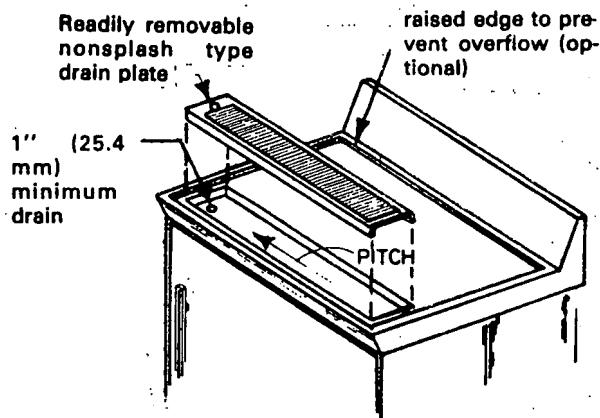
4.50 SOUND DAMPING: Food service equipment that is sound damped, shall have damping materials applied so no dirt or debris will collect and adhere. The surface shall be nonabsorbent and comply with Item 3.10.

4.55 TOPS OF STEAM TABLES WITH WATER PANS AND TABLES WITH COLD PANS: For easy cleaning of interiors, where practical, steam table tops and the tops of tables with cold pans shall be readily removable. If tops are not readily removable, openings shall be sized and located to permit access for cleaning the complete interior.



STEAM TABLE TOPS

4.56 URN STANDS: Urn stands shall have built-in pitched troughs equipped with nonsplash removable drain plates beneath the dispensing faucets. The troughs shall be provided with a 1 inch (25.4 mm) IPS drain connection or removable drain cup. Edges of punched slots and openings shall be smooth. If necessary to prevent overflow onto the floor or other units, edges shall be raised as required in Item 4.24.



URN STANDS AND WATER STATIONS

4.57 WATER STATIONS: Water stations shall be fabricated to comply with Item 4.56. Waste lines shall not drain into or through the food zone.

4.58 DIPPER WELLS: Wells for ice cream or other dippers shall be equipped with running water. There shall be no rough or open seams. The top of the well shall be at least 4 by 4 inches (101 by 101 mm), and interior angles shall have radii of at least 1/8 inch (3.2 mm). Separating partitions of dipper wells shall be readily removable for cleaning. Any overflow standpipe shall be readily accessible for brushing and cleaning.

4.59 CANOPIES AND HOODS: The interior surfaces of canopies and hoods shall be hard, smooth, and easily cleanable. Interior reinforcing shall be smooth, easily cleanable, and not act as a dam or create a surface on which grease or condensate will collect and drip. Gutters, when provided, shall be smooth, easily cleanable, and fitted with a drain or clean-out opening.

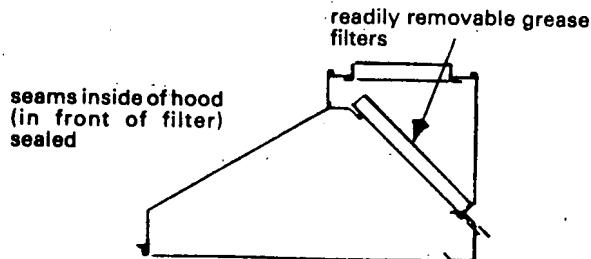
4.59.1 CURTAIN-TYPE: The interior of the hood shall comply with Item 4.11.

4.59.2 OPEN-TYPE HOODS: Hoods shall have smooth, easily cleanable interiors. If gutters are built into bottom edges, they shall be sized and designed for easy cleaning.

4.59.3 PLENUM-TYPE HOODS WITH FILTERS: Filters used in hoods shall be readily removable and installed to prevent drippage into food.

4.59.4 PLENUM-TYPE HOODS WITHOUT FILTERS: Baffles, turning vanes, and sliding dampers used to control air volume shall be readily accessible or readily removable and easily cleanable.

materials including coatings  
must meet requirement for  
splash zone. Paint is not ac-  
ceptable

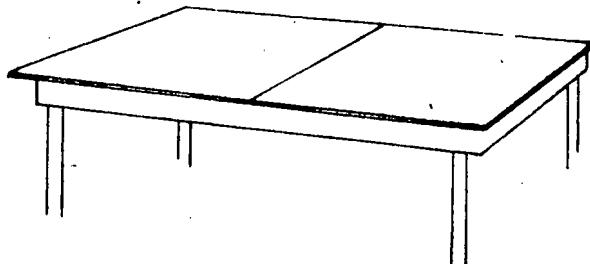


PLENUM TYPE HOODS

4.60 WOOD-TOP BAKERS TABLES AND CUTTING BOARDS: Wood-top bakers tables and cutting boards shall meet the following requirements:

- 4.60.1 SIZE: Cutting boards used as a work top shall be readily removable and shall not exceed 3 feet (0.9 m) in any plane and 50 pounds (22.7 kg) in weight. Sandwich-type cutting boards shall not exceed 12 inches (0.3 m) in width and 50 pounds (22.7 kg) in weight.
- 4.60.2 LAMINATION WIDTH: Maximum lamination width shall be 1-3/4 inches (44.4 mm).
- 4.60.3 BOND SURFACES: Surfaces to be bonded shall be microplaned to  $\pm 0.002$  inch (0.05 mm) and bonded within such time to insure the tolerance.
- 4.60.4 LAMINATION SURFACES: Lamination surfaces shall be straight grained and free from knots, decay, warp, larva channels, open checks, and splits on all contact surfaces. Laminates shall be edge grained with only the natural deviation in angle of grains to working surface.
- 4.60.5 ADHESIVES: Adhesives shall meet the requirements of Item 3.1 and allow no visible delamination when tested in accordance with Appendix B.
- 4.60.6 BONDING: Surfaces to be bonded shall be in intimate contact at controlled pressure of between 150 and 250 psi (1034 and 1723 kPa). Pressure shall be continuous, or at points within 12 inch (304.8 mm) spacing along lamination, and within 6 inches (152.4 mm) of ends. All glued joints shall equal or exceed the sheer strength of the wood (minimum 1800 psi [12409 kPa]).
- 4.60.7 FINISH: All food contact surfaces shall be properly machined and sanded. There shall be no imperfections on any contact surfaces. Sealers, if used, shall comply with Item 3.1.
- 4.60.8 EXPANSION: Table tops shall be installed to insure normal atmosphere on all surfaces including the bottom. Tops shall be installed or attached to provide 1/16 inch (1.6 mm) expansion for every lineal foot (0.3 m) of width perpendicular to grain direction. Slotted or oversize holes may be used in the supporting frame to provide this tolerance.
- 4.60.9 INSTALLATION AND CLEANING INSTRUCTIONS: The manufacturer shall provide recommended installation practices and detailed cleaning instructions with each wood-top bakers table.

readily removable synthetic top



when cutting boards are used in work top application,  
no section shall exceed 3 feet (0.9 m) in any plane or 50  
pounds (22.7 kg) in weight and must be readily remov-  
able

#### CUTTING BOARDS AND WORK TOPS

4.61 ICE PANS AND BINS: Joints and seams in ice pans and bins (food zone) shall be sealed and smooth as the surfaces being joined. Sealants, including solder, may be used for sealing structurally sound seams. All internal angles shall have a minimum radius of 1/8 inch (3.2 mm). Solder may be used to effect the required radius. Drains shall not discharge into or through ice pans or bins.

4.61.1 A cover meeting the requirements of Item 4.20 shall be required. When top openings into ice pans and bins are subject to overhead contamination from drink dispensers or water stations, they shall be protected during use and holding. Self-closing doors, operational shields, or dispensing head lockouts shall be considered as meeting this requirement.

4.61.2 Drop-in cold plates, carbonator tanks, bottle holders, beverage tubing, service lines, and similar devices (except bin level controls) are not acceptable in potable ice pans or bins. Cold plates, when installed in potable ice bins, shall be constructed integrally with the bin, and the resultant seam shall comply with Item 4.8. Sealing compounds shall comply with Item 3.1, and are acceptable for sealing structurally sound seams.

4.62 CARBONATORS: The interior of carbonator pumps and tanks shall comply with the material requirements of Item 3.1, and the general design of the pump and tank exterior with Item 4.10. Carbon dioxide, carbonic acid, or carbonated water shall not contact copper or copper alloy water tubing and devices or service lines.

4.63 WATER INLETS AND STORAGE: Water, if supplied to the equipment under pressure, shall comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food and Drug Administration Model Food Codes.

4.64 CHECK VALVES: Check valves shall meet the requirements of American Society of Sanitary Engineers (ASSE) Standard 1024 and/or ASSE Standard 1032.

4.64.1 Each double check valve assembly shall have the following permanent markings plainly visible on the body. If integrally attached to the carbonating tank, the markings may be on the carbonating tank.

- Manufacturer's name or trade mark
- Model number
- Check valve designed for hot water shall include the letter "H" in the model designation
- Direction of flow

#### **SECTION 5. WHEELED FOOD SERVICE EQUIPMENT**

5.0 GENERAL: Wheeled food service equipment shall comply with the applicable items in Sections 1, 2, 3, and 4, and the following specific items:

5.1 PAN WELLS: In food carts, wells for pans shall have coved corners to facilitate cleaning and comply with Items 4.3.1 and 4.3.2.

5.2 CLEANING (AUTOMATIC): If equipment is to be subjected to automatic cleaning methods, horizontal projections and other obstacles that prevent self-draining shall be eliminated. Manufacturer's recommendations for cleaning and maintenance shall be provided.

5.3 DRAINS: Wheeled equipment shall not be required to have drains. However, if provided, they shall comply with the applicable requirements of this standard.

#### **SECTION 6. CONVEYORS**

6.0 CONVEYORS: Conveyors shall comply with the applicable items of Sections 1, 2, 3, and 4, and the following specific items:

6.1 MATERIALS: Belt materials shall be nontoxic, oilproof, and constructed so raw edges and sides are sealed. The belt shall be relatively nonabsorbent. Belt lacings or fastenings shall comply with the applicable cleanability requirements for the zones in which used.

6.2 MECHANICAL CLEANING DEVICES: Mechanical cleaning devices (wet or dry) for conveyors shall be made readily accessible for cleaning.

6.3 CLEANABILITY: Waste pans and housing areas shall be readily accessible for cleaning.

- 6.3.1 Conveyer belt, belt support pan, rollers, driving mechanism, and pulleys shall be readily accessible for cleaning.
- 6.3.2 The base of conveyer units shall have readily removable access panels.
- 6.3.3 Readily removable catch pans of proper design and adequate capacity shall be provided where spillage, splash, and debris may accumulate. Food waste collection and disposal stations shall be fabricated and equipped to facilitate collection and/or disposal of food wastes in an acceptable manner, and be easily cleaned.

6.4 DRAINS: Drains, if provided in connection with conveyors for soiled dishes, shall have readily removable strainer baskets or similar devices.

6.5 MOTORS: Motors shall be located to be protected against splash, spillage, and debris, or be otherwise protected.

#### **SECTION 7. ENCLOSED FOOD TRANSPORT CARTS AND CABINETS**

- 7.0 GENERAL: Enclosed food transport carts and cabinets shall comply with the applicable items of Sections 1, 2, 3, 4, and 5, except as follows:
- 7.1 CLEANING INSTRUCTIONS: When pressure cleaning is recommended, the manufacturer shall provide recommended cleaning instructions with each cart or cabinet.
- 7.2 JOINTS AND SEAMS, MANUAL CLEANING: Joints and seams of carts or cabinets designed for manual cleaning, joints and seams shall comply with the applicable requirements of Section 4.
- 7.3 JOINTS AND SEAMS, PRESSURE CLEANING: If pressure cleaning is recommended, joints and seams shall be sealed or fabricated to be accessible for cleaning and capable of being completely drained. Joints and seams shall be minimized. Joints may be made by overlapping sheets of material in a vertical plane to eliminate dirt-catching horizontal ledges. Joints and seams shall be fabricated to minimize the entrance and accumulation of seepage, condensation, or food spillage.
- 7.4 INSULATION: Insulation shall be of a material and installed so voids do not occur between parts and the insulation, and will not compact, settle, or separate under normal use. Insulated sections shall be sealed when moisture may damage the insulating material. Insulation material shall be vaporproofed to prevent undue migration of moisture vapor.
- 7.5 HINGES: Fixed pin or piano hinges may be used on enclosed food transport cabinets on the outside front corner or side plane of the cabinet.

7.6 CASTER TREADS: Motorized transport cabinets, or cabinets with pneumatic, semipneumatic, or conductive-type wheels, need not have smooth treads as required in Item 4.27.2 of NSF Criteria C-2.

7.7 PERFORMANCE REQUIREMENTS - ELECTRICALLY OPERATED HOT AND COLD FOOD TRANSPORT HOLDING CARTS AND CABINETS: Electrically operated transport carts and cabinets shall meet the performance requirements indicated below when tested according to Appendix A:

7.7.1 COLD FOOD HOLDING EQUIPMENT:

- Cabinet Air Temperature: 40° F (4.4° C)
- Maximum Operating Time: 100%

7.7.2 HOT FOOD HOLDING EQUIPMENT:

- Cabinet Air Temperature: 150 - 175° F (65 - 79° C)
- Maximum Operating Time: 100%

## APPENDIX A

### PERFORMANCE TEST PROCEDURES FOR ELECTRICALLY OPERATED HOT AND COLD FOOD TRANSPORT HOLDING CARTS AND CABINETS

#### I. TEST CONDITIONS:

- A. The cart or cabinet shall be operated under the following test conditions at the given ambient temperature for sufficient time to establish thermal equilibrium. Then it shall be operated for the test period (maximum 2 hours), during which performance is determined. Dual temperature, single enclosure tray units are exempt from the thermal equilibrium requirement, if the unit meets both hot and cold temperature requirements of Items 7.7.1 and 7.7.2 when operated within the manufacturer's maximum operating time.
- B. Electric power supply during test shall be 115 or 230  $\pm$  2 volts AC or DC, nominal 60 Hz AC. These test procedures may be used for other power supplies if recommended. The actual power supply used for test shall be reported.
- C. The cart or cabinet shall be placed far enough away from other objects in the hot room to minimize danger of it varying from the test ambient (see Section II.B.4).
- D. The cart or cabinet shall be placed or shielded to prevent direct radiation to or from space-cooling or heating equipment. Windows in the test room shall be shielded from radiant heat.
- E. Air circulation in the room shall provide specified uniformity of temperature distribution. The test cart or cabinet shall be shielded from forced-air currents.
- F. Units for use with holding trays shall be tested with trays installed at test locations, with additional trays installed for air circulation control as recommended by the manufacturer.

#### II. TEMPERATURES:

##### A. Ambient Test Chamber Temperature:

1. Ambient temperature shall be recorded at points 3 feet (0.9 m) above the floor and 10 inches (254 mm) from the cabinet. The temperature shall be maintained within  $\pm$  3° F ( $\pm$  1.5° C) of the required values.

2. Temperatures shall be measured with acceptable temperature recording devices or glass thermometers.
3. The temperature-sensitive part of the thermometric device shall have, or be in thermal contact with, a metallic mass to generate a heat capacity not more than 20 grams of water.
4. The temperature gradient in a foot (0.3 m) of vertical distance from the platform to a height of 7 feet (2.1 m) shall not exceed  $1.5^{\circ}$  F ( $0.8^{\circ}$  C) per foot (0.3 m).

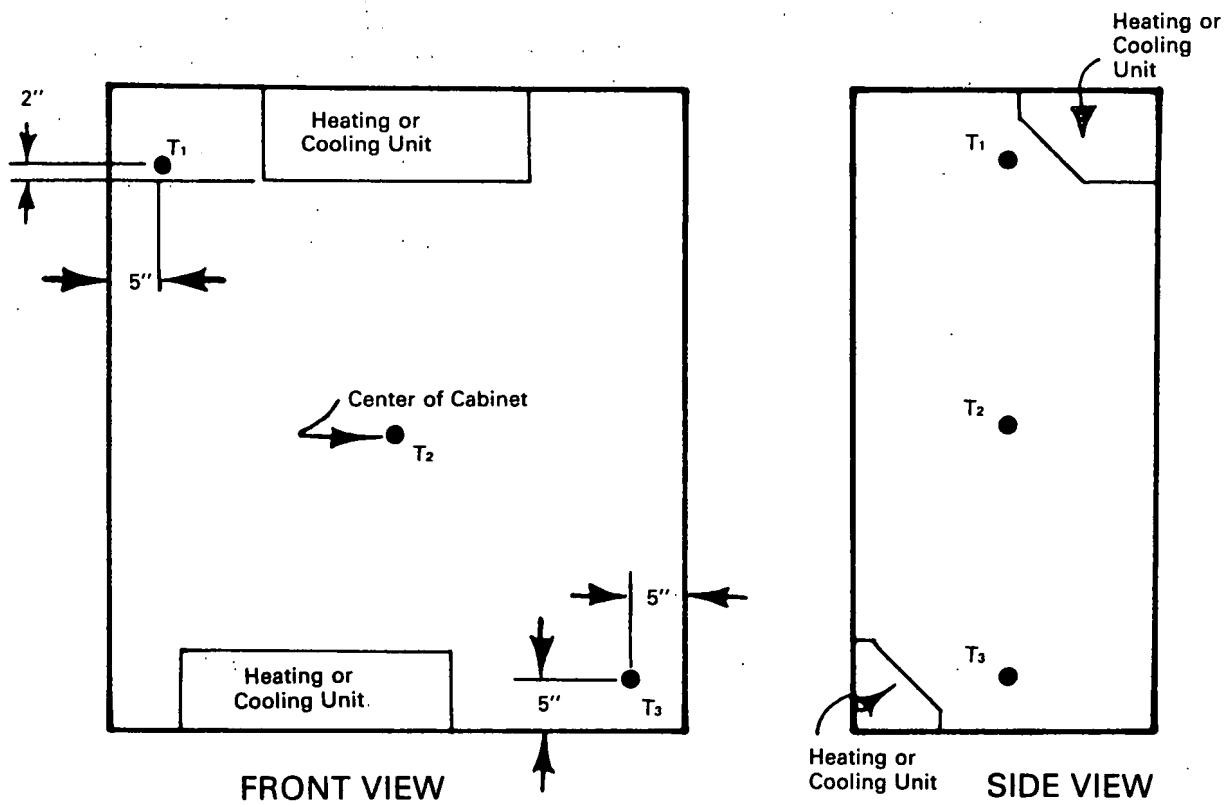


FIGURE A-1. TYPICAL LOCATION OF SENSING ELEMENTS

B. Internal Cabinet Temperature:

1. Cart or cabinet temperatures shall be recorded at three locations shown in Figure A-1.
2. If interior of cart or cabinet does not conform to Figure A-1, measurements shall be taken at selected locations complying with the intent of the standard. The location selected shall be reported.
3. Measurements shall be taken midway between front and back of food compartment.

4. Temperatures shall be taken with an acceptable temperature sensing device. Each thermocouple or temperature sensing element shall have, or be in thermal contact with, a metallic mass to generate total heat capacity equal to 20 grams of water.
5. All temperature sensitive elements shall be supported so there will be at least 1/2 inch (12.7 mm) of air space separating the thermal mass from contacting heat conducting surfaces (shelving, etc.).
6. Leads from the temperature sensing device shall be brought outside the cabinet to minimize interference with air seals.
7. Preferably, temperatures shall be recorded graphically; however, an indicating instrument may be used.

### III. INSTRUMENTS AND MEASUREMENTS:

- A. Acceptable Temperature Sensing Device: A device capable of remotely sensing and recording temperature with an accuracy of  $\pm 1^\circ F$  ( $\pm 0.5^\circ C$ ).

### IV. NO LOAD TEST:

- A. The purpose of this test is to determine average cabinet temperature at the required ambient temperature (see Section II.A).
- B. For cold food holding equipment, establish ambient temperature at  $100 \pm 3^\circ F$  ( $37.8 \pm 1.5^\circ C$ ). For hot food holding equipment, establish ambient temperature at  $73.4 \pm 3.6^\circ F$  ( $23 \pm 1.8^\circ C$ ).
- C. The cart or cabinet air temperature shall be the average of temperatures measured at a specific location (see Figure A-1):
  1. Cold Food Holding Equipment: The average temperature at a location shall be maintained at an equilibrium  $\pm 3^\circ F$  ( $\pm 1.6^\circ C$ ). The average value of the temperature measured at a location shall not exceed the requirement for cold food holding equipment.
  2. Hot Food Holding Equipment: The temperature at a location shall be between  $150$  and  $175^\circ F$  ( $65.5$  and  $79.4^\circ C$ ) during the test period.
- D. When more than one temperature zone is provided, temperature data for each shall be reported separately.

## APPENDIX B

### ADHESIVE BOND TEST

I. PURPOSE: To determine that adhesives do not allow delamination of surfaces of wood-top bakers tables and cutting boards.

II. APPARATUS:

- 24-quart stock pot
- Hot plate
- Thermometer
- Oven
- Machinist's rule/Micrometer

III. PROCEDURE:

- A. Use three 5 x 5 x 1 inch (127 x 127 x 25.4 mm) samples. Samples should be uncoated for this test.
- B. Submerge samples in boiling water for 2 hours.
- C. Remove samples and dry for 20 hours at  $145 \pm 5^\circ$  F ( $62.8 \pm 2.5^\circ$  C).
- D. Examine edges for delamination.

IV. ACCEPTANCE: A sample fails when any single visible delamination between two layers of veneer is greater than 2 inches (50.8 mm) in continuous length and over 1/8 inch (3.2 mm) in depth at any point.

McPhee, Harvey J., Director, Department of Inspection, City of St. Louis Park,  
5005 Minnetonka Boulevard, St. Louis Park, Minnesota 55416

Menzel, Daniel B., PhD, Chairman, Community & Environmental Medicine, California  
College of Medicine, Irvine, California 92717

Middendorf, William B., Director, Environmental Services, Benatec Associates,  
101 Erford Road, Camp Hill, Pennsylvania 17011

Mood, Eric W., PhD, Associate Clinical Professor of Public Health, Department  
of Epidemiology and Public Health, Yale University School of Medicine, 60  
College Street, New Haven, Connecticut 06510

Pcole, Eanix, Administrator, Environmental Health Programs, Florida Department  
of Health and Rehabilitative Services, 1317 Winewood Boulevard,  
Tallahassee, Florida 32399-0700

Quevedo, Fernando, PhD, DPH, Regional Advisor, Food Protection and Safety,  
Veterinary Public Health Program, Pan American Health Organization/WHO,  
525 Twenty-Third Street, NW, Washington, DC 20037

Rhodes, Martha E., PhD, Assistant Commissioner, Department of Agriculture and  
Consumer Services, Capitol, Tallahassee, Florida 32399-0810

Roark, Timothy D., Canadian Institute of Public Health Inspectors, 20898 Meadow  
Place, Maple Ridge, British Columbia, Canada V3Z 1C7

Smith, Peter J., Associate Center Director for Field Services, Center for  
Environmental Health, New York State Department of Health, 11 University  
Place, Albany, New York 12203-3313

Spalding, Roy F., PhD, Principal Hydrochemist, Conservation and Survey  
Division, 113 Nebraska Hall, University of Nebraska, Lincoln, Nebraska  
68588-0517

Veverka, Frances N., Health Commissioner, Delaware City-County Health  
Department, 115 North Sandusky Street, Delaware, Ohio 43015

Young-Horvath, Viola Mae, PhD, Consultant in Microbiology and Public Health,  
5203 Bangor Drive, Kensington, Maryland 20795

JOINT COMMITTEE  
ON  
FOOD EQUIPMENT

Chairperson, Kirkwood, Philip B., Jr., Michigan Department of Public Health,  
3500 North Logan Street, Lansing, MI 48909

Public Health

Beaulieu, Raymond D., Interagency Programs, Retail Food Protection Branch/FDA  
HFF342, 200 "C" Street SW, Washington, DC 20204

Caves, H.A., Chief, Food Protection Service, Oklahoma State Department of Health,  
1000 NE 10th Street, P.O. Box 53551, Oklahoma City, OK 73152

Gadd, Erwin P., Bureau of Community Sanitation, Missouri Department of Health,  
1730 East Elm, P. O. Box 570, Jefferson City, MO 65102

Garst, W. Galen, Environmental Health Services, Oakland County Department of  
Public Health, 27725 Greenfield Road, Southfield, MI 48076 (National  
Environmental Health Association)

Grills, William A., MPH, 213 Deer Creek Road, Rochester, IL 62563 (Conference  
of State Health and Environmental Managers)

Hazlewood, A. G., Federal/Provincial Sub-Committee on Food and Regulatory Health,  
Ministry of Health, Preventive Services, 5th Floor, 1515 Blanshard Street,  
Victoria, British Columbia, V8W 3C8

Heffron, Edward C., DVM, Food Division, Michigan Department of Agriculture,  
North Ottawa Building, P. O. Box 30017, Lansing, MI 48909 (Association of  
Food and Drug Officials)

McPhee, Harvey J., Director, City of St. Louis Park, Inspectional Services, 5005  
Minnetonka Boulevard, St. Louis Park, MN 55416 (National Conference  
of Local Environmental Health Administrators)

McSwane, David, Assistant Professor, School of Public & Environmental Affairs,  
Indiana University, Indianapolis, IN 46202 (American Public Health  
Association)

Oyster, Royal J., Equipment Standards and Review Branch, Food Safety and  
Inspection Service, US Department of Agriculture, Washington, DC 20250

Sargeant, Dean, City of Winnipeg Health Department, 280 William Avenue,  
Winnipeg, Manitoba, Canada R3B-0R1 (Canadian Institute of Public  
Health Inspectors)

Schmutz, Clare, Environmental Health Division, Clark County Health District,  
P.O. Box 4426, Las Vegas, NV 89106

Shaw, Duain B., Food Service Facilities, Division of Food Protection, Department of Environmental Resources, P. O. Box 2357, Harrisburg, PA 17120 (International Association of Milk, Food and Environmental Sanitarians)

Vinatieri, Michael T., Director, Division of Environmental Health, Sonoma County Department of Health Services, 3313 Chanate Road, Santa Rosa, CA 95404

User

Beaudin, Richard L., Cini-Little Associates, Inc., 139 Bell Street, Chagrin Falls, OH 44022 (Foodservice Consultants Society International)

Bernazzani, Robert, STRNC-WES, US Army Natick Research Development and Engineering Center, Natick, MA 01760-5018

Brown, James L., Technical Services, Public Health and Safety, National Restaurant Association, 1200 17th Street NW, Washington, DC 20001 (National Restaurant Association)

Duning, Ronald L., Director of Equipment Development, Wendy's International, Inc., P. O. Box 256, Dublin, OH 43017 (National Restaurant Association, Multiunit Architects, Engineers and Construction Officers)

Farquhar, John, PhD, Scientific and Technical Services, Food Marketing Institute, 1750 K Street NW - Suite 800, Washington, DC 20006

Freedman, David H., Department of Defense, US Army Troop Support Agency, ATTN:DALO-TAE-E, Ft. Lee, VA 23802

Gregg, Charles S., US Army Environmental Hygiene Agency, HSHB-MO-IH, Aberdeen Proving Ground, MD 21010-5422

Hensley, James, PhD, Captain, Chief of Environmental and Occupational Health, USCG Island, COM(K) MLC PAC, Alameda, CA 94501

Kitson, E. James, 8535 Cordwood Trail, Sheboygan, MI 49721 (American School Food Services Association)

Lacey, Ronald E., National Manager, Engineering Services, Taco Bell Corporation, 17901 Von Karman, Irvine, CA 92714-6212

Peterson, Randall, Holland America Line, 300 Elliott Avenue West, Seattle, WA 98119

Schmidt, Robert, Major, U.S. Army Troop Support Agency, DALO-TAV, Ft. Lee, VA 23801-6020

Shafer, Richard L., Colonel, Chief, Environmental Health, HQ USAF/SGPA Bolling AFB, DC 20332-6188

Smith, Ted L., Food Services, Michigan State University, McDonel Hall, Residence Halls W-37, East Lansing, MI 48824 (National Association of College and University Food Services)

Weller, Burt, Vice President Engineering, McDonalds Corporation, 1 McDonalds Plaza, Oakbrook, IL 60521

Wilson, Maxine, 262 Westview Circle, West Lafayette, IN 47906 (American Dietetic Association)

**Industry**

Chaudoir, Rod, Hatco Corporation, 635 South 28th Street, Milwaukee, WI 53215

Damm, Ray B., Sweden Freezer, Inc., 5700 W. Raymond Street, Indianapolis, IN 46241

Elliott, Michael, Elliott-Williams Co., Inc., 2900 North Richardt Avenue, Indianapolis, IN 46219

Fakes, Roger, Auto-Chlor System, Inc., 746 Poplar Avenue, Memphis, TN 38105

Farkash, Howard, Bally Engineered Structures, Inc., Refrigerated Structures Division, P. O. Box 98, Bally, PA 19503

Fisher, Howard, Dean Industries, 5930 West Jefferson Boulevard, Los Angeles, CA 90016

Freiling, Walter, Glenco Refrigeration Corp., 800 Penrose Avenue at International Airport, Philadelphia, PA 19153

French, H. Ed, Larkin Coils, Inc., 519 Memorial Drive, P. O. Box 1699, Atlanta, GA 30371 (Air Conditioning and Refrigeration Institute)

Holoubek, Andrew J., McCann's Engineering and Manufacturing Company, 4570 Colorado Boulevard, Los Angeles, CA 90039

Jaffee, Robert, Amco Corporation, 901 North Kilpatrick Avenue, Chicago, IL 60651

Jensen, David V., The Cornelius Co., One Cornelius Place, Anoka, MN 55303-1592

Kulma, John W., Crescent Metal Products, Inc., 12711 Taft Avenue, Cleveland, OH 44108

Schneider, K. W., Ross-Temp Division, Schneider Metal, 2421 15th SW, Mason City, IA 50401

Schreier, Bernard, Miesel/Sysco, P. O. Box 579, Detroit, MI 48232 (Foodservice Equipment Distributors Association)

Schwartz, Milton, Advance Food Service Equipment, Inc., 750 Summa Avenue, Westbury, NY 11590 (Food Equipment Manufacturers Association)

Tuhro, Al, Seco Engineering and Southern Equipment, Division of BIH Food Services, 4550 Gustine Avenue, St. Louis, MO 63116